



Steven T. Gaito
NAPL Technical Leader

Education

BS Interdisciplinary Engineering,
Boston University, MA, 1999

Years of Experience: 17

Technical Specialties

Petroleum Site Assessment

Light Nonaqueous Phase Liquids
(LNAPL)

Dense Nonaqueous Phase Liquids
(DNAPL)

NAPL Conceptual Site Models

Site Strategy Development

Natural Source Zone Depletion

Professional Associations

Association for Environmental
Health and Sciences (AEHS)
Foundation's Scientific Advisory
Board for the East Coast
Conference
January 2017 to Present

Interstate Technology and
Regulatory Council, LNAPL Update
Team
March 2016 to Present

American Society for Testing and
Materials (ASTM), Subcommittee
E50.04 Corrective Action, Task
Group on LNAPL Conceptual Site
Model Standard Guide Revisions.
October 2011 to Present

Mr. Gaito is a technical expert on nonaqueous phase liquid (NAPL) site assessment and remediation strategies focused on subsurface investigations, conceptual site models, remedial strategies, and stakeholder management related to non-aqueous phase liquids (NAPL) projects for auto, rail, energy and oil and gas clients. Mr. Gaito maintains his technical expertise through participation in innovative research in cooperation with clients, presenting at technical conferences, serving on the ITRC LNAPL Update Team and ASTM committee revising the ASTM LNAPL Guidance Document E 2531-06, and leading LNAPL transmissivity workshops.

Mr. Gaito's experience includes analytical interpretation of soil and groundwater data specializing in the development and visualization of NAPL conceptual site models (CSM) and risk-based NAPL remedial strategies. Recent projects include negotiating with regulatory agencies focusing on manageable remedial endpoints, including NAPL transmissivity, and natural source zone depletion. Mr. Gaito has successfully reduced the life-cycle costs for clients by developing NAPL management strategies that are scientifically driven and incorporate manageable endpoints.

Project Experience

Environmental Trust Fund Development, United States. Managed the development of liability estimates for former automotive sites to fund an environmental trust fund to remediate 89 abandoned sites from the bankruptcy affected with NAPL, PCBs, and chlorinated solvents. Primary point of contact with client tasked to coordinate with senior managers, develop environmental liabilities and negotiation with federal and state agencies, including U.S. EPA, U.S. Treasury, and Department of Justice. These efforts resulted in emergence from the largest bankruptcy in the United States with a comprehensive plan and funding (\$480 MM) to bring the 89 properties to regulatory closure.

DNAPL Management Strategy, Manufacturing Plant, New York. Developed comprehensive NAPL management strategy for a NAPL with PCBs along a river that included a sheet pile wall, sediment dredging, and DNAPL recovery with a multi-disciplinary team. DNAPL CSM was developed to define the extent, demonstrate the DNAPL footprint was stable and focus DNAPL recovery efforts.

DNAPL Conceptual Site Model for MGP Plant, Virginia. Developed DNAPL CSM at a site with NAPL sheens on a river. Utilized TarGOST, DNAPL baildown tests, and natural source zone depletion (NSZD) to develop a comprehensive model that explains the distribution, recoverability, and source of sheens. Met with regulators and gained approval of DNAPL CSM and approach on comprehensive remedial strategy.

LNAPL Site Closure, Confidential Rail Client, Massachusetts. Development of site characterization plan and conceptual site model to support a permanent solution at a former railyard with measurable LNAPL. The site was part of a property transaction with multiple LSPs and all

agreed on permanent solution based on comprehensive LNAPL CSM that demonstrated LNAPL with micro-scale mobility was stable and was not feasible to recover.

Value Engineering, Confidential Rail Client, Multiple States. Contributed to the development and implementation of a value engineering program for a portfolio of over 60 remediation projects across the United States. Responsible for conducting independent review of NAPL management practices with primary consultant and client. Worked cooperatively with project team resulting in a total life-cycle portfolio cost reduction of \$20MM in the first year of program.

LNAPL Management Program, Tesoro Refinery in Western US

Technical lead responsible for developing and communicating the LNAPL management strategy that includes a LNAPL transmissivity based LNAPL recovery prioritization protocol for a 200 well network for a conservative regulatory agency.

LNAPL Management Strategy, Confidential Oil & Gas Clients. Developed a comprehensive LNAPL CSM and risk-based management strategy for a 20-acre LNAPL plume at an operating transportation hub with multiple responsible parties. Negotiated an Administrative Order on Consent with EPA Region 2 that included natural source zone depletion as a remedy and transmissivity as an endpoint in areas of LNAPL recovery reducing the expected life-cycle costs by approximately \$40MM.

DNAPL Management Strategy for MGP Plant, Florida. Developed NAPL management strategy using multiple lines of evidence, including dissolved-phase concentrations and petrophysical data, to demonstrate the DNAPL footprint was stable and DNAPL was not recoverable. Compared active recovery rates to mass losses due to natural processes (NSZD) that resulted in termination of active recovery.

Natural Source Zone Depletion Study, ExxonMobil. Developed a comparative study of NSZD measurement methods, including the gradient method, carbon dioxide traps, automated dynamic closed chamber soil gas flux analyzers, and temperature and pressure profiling in the vadose zone. NSZD measurement methods were used concurrently at similar locations to support a detailed comparison of the advantages and disadvantages of each method. Prepared a summary report presenting the results and providing best-practice recommendations for future use of each method within site assessments and remedial evaluations.

LNAPL NSZD Study, ExxonMobil Terminal, Australia

Provided technical direction and analysis for a NSZD study to support development of remediation endpoints for an active LNAPL remediation system in Australia.

LNAPL Management Strategy, Canadian National, St. Albans, VT.

Developed a risk-based demonstration focused on LNAPL stability and recoverability to cease active remediation and achieve a permanent closure. Project used multiple lines of evidence to demonstrate the LNAPL plume was stable and not recoverable resulting in regulatory closure.

Active Rail Yard, Confidential Rail Client, Montana. LNAPL technical lead for thirty-acre LNAPL plume at active rail yard. Responsible for developing a relationship with regulatory agency, optimizing current interim remedy, and developing a LNAPL management strategy to incorporate into a record of decision for the project.

Portfolio of Natural Gas Plants, ExxonMobil, Texas and Oklahoma.

Technical lead for LNAPL program utilizing advanced laboratory and technical analysis including LIF, MVS modeling, petrophysical testing, and LNAPL transmissivity and natural source zone depletion (NSZD) evaluations to develop risk-based closure strategies for a portfolio of 11 natural gas

production sites affected with gas condensate. Program resulted 8 of 11 of the gas plants received closure from Oklahoma and Texas regulators within 3 years of project initiation.

Technical Trainings

June 2015 and June 2017 in Massachusetts - *Estimating LNAPL Transmissivity: A Guide to Using ASTM Standard Guide E2856*

Kansas Department of Human Health and Environment – May 2017 *LNAPL Management and LNAPL Transmissivity Training*

Maryland Department of the Environment – July 2015 *Risk Based LNAPL Management*

New York State Department of Environmental Conservation – July 2015 *Risk Based LNAPL Management*

Select Presentations

Gaito, Steven; Smith, Jonathon; Koons, Brad; Harding, Bary; Kalinowski, Tomasz; Swiger, Nick (May 2017) "Quantifying Petroleum Biodegradation Rates using Temperature" Poster presented at the Battelle Symposium on Bioremediation and Sustainable Environmental Technologies, Miami, FL.

Kirkman, Andrew; Gaito, Steven; Smith, Jonathon; and Koons, Brad; (May 2017) "Bioventing Revisited – Can Enhanced NSZD Outperform Hydraulic LNAPL Recovery," Unpublished paper presented at the Battelle Symposium on Bioremediation and Sustainable Environmental Technologies, Miami, FL.

Gaito, Steven; Pennington, Andy; Smith, Jonathon; Koons, Brad; Hopkins, Harley; and Malander, Mark (March 2015) "Comparison of Natural Source Zone Depletion (NSZD) Characterization Methods," Unpublished paper presented at the Association for Environmental Health and Sciences (AEHS) Conference, San Diego, CA.

Nelson, Trika and Gaito, Steven (April 2015) "Using Natural Source Zone Depletion to Evaluate and Manage NAPL at a Manufactured Gas Plant Site," Poster presented at the MGP Conference, Providence, RI

Gaito, Steven, Koons, Brad; Gaito, Steven; and Trigger, Grant (May 2014) "Natural Source Zone Depletion Evaluations at a Capped Site: Limitations in Current Quantification Methods," Poster presented at the Battelle Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA.

Sillan, Randy; Koons, Brad; Gaito, Steven; and Trigger, Grant (May 2012) "A Comparison of Five LNAPL Remediation Approaches Based on Treatability Testing Results: Buick City Case Study," Unpublished paper presented at the Battelle Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA.

Kurzanski, Paul J., Gaito, Steven; Jonathon Smith, (October 2013), "Evaluation of Natural Source Zone Depletion Using Temperature and Carbon Dioxide Flux: A Case Study," Unpublished paper presented at the Association for Environmental Health and Sciences (AEHS) Conference, Amherst, MA.

Bartz, Curtis; Karnis, Stella; Adams, Rick; Gaito, Steven; Shah, Purvee; Koons, Brad (October 2012), "Changing the Paradigm of Legacy Rail Yards with Residual LNAPL," Unpublished paper presented Railroad Environmental Conference, Urbana-Champaign, IL.

